IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Eduardo BLUMWALD et al.

Serial No.: 09/271,584

Filing Date: March 18, 1999

For: GENETIC ENGINEERING SALT TOLERANCE IN CROP PLANTS

Examiner: A. Kubelik

Group Art Unit: 1638

DECLARATION OF MARIS APSE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir or Madam:

I, Maris Apse, declare as follows:

1. I am currently employed as a Principal Scientist at Arcadia Biosciences, Inc. in Davis, California; the current licensee of the above-referenced patent application.

2. I am a co-inventor of the invention disclosed in the above-referenced patent application, and am familiar with the contents thereof. I stand to receive a portion of any net royalties and fees received by the University of Toronto Innovations Foundation ("the Foundation") connection with the invention pursuant to a contractual relationship with the Foundation.

3. I hold a Ph.D. in Botany from the University of Toronto, 2001, and have been actively involved in Plant Physiology and Plant Molecular Biology research for 10 years. My curriculum vitae is attached hereto as Exhibit A.

4. I have read the specification of the above-referenced application and am familiar with the passage from the specification reproduced below.

> Methods of modifying DNA and polypeptides, preparing recombinant nucleic acid molecules and vectors, transformation of cells, expression of polypeptides are known in the art. For guidance, one may consult the following US patent nos. 5,840,537, 5,850,025, 5,858,719, 5,710,018, 5,792,851, 5,851,788, 5,759,788, 5,840,530, 5,789,202, 5,871,983, 5,821,096, 5,876,991, 5,422,108, 5,612,191, 5,804,693, 5,847,258, 5,880,328, 5,767,369, 5,756,684, 5,750,652, 5,824,864, 5,763,211, 5,767,375, or 5,750,848. Many of these patents also provide guidance with respect to experimental assays, probes and antibodies, transformation of host cells and regeneration of plants, which are described below. These patents, like all other patents, publications (such as articles and Genbank publications) in this application, are incorporated by reference in their entirety. (page 34, lines 5 through 14 of the specification)

This section of the specification refers to methods of "preparing recombinant nucleic acid molecules and vectors". Based upon my experience as a molecular biologist, hybridization is a technique used in preparing recombinant nucleic acid molecules and vectors. For example, in cloning a gene of interest, it is common to screen a cDNA library with a hybridization probe that is expected to hybridize to the gene. Cloning a gene by screening a cDNA library clearly falls within the scope of "preparing recombinant nucleic acids and vectors", in my experience.

5. In addition, this section also makes reference to providing guidance with respect to "probes". From the context of this statement, I believe that "probes" includes hybridization probes for use in hybridization assays.

6. I have read and understood column 21, lines 8-54 of U.S. Patent No. 5,750,848 (the "'848" patent). This section of the '848 patent discloses hybridization using a cloned nucleic acid as a hybridization probe to isolate "biologically functionally equivalent forms" of the cloned nucleic acid. This section of the '848 patent discloses a range of hybridization conditions as "exemplary conditions." Those exemplary conditions include at least one wash for 15 minutes in 0.1X SSC at 55° C, preferably at 60° C, and more preferably at 65° C. The most

preferred conditions are in the range of high stringency hybridization wash as disclosed in Table 4 of the above-referenced patent application.

7. Based upon my experience as a molecular biologist, I am of the opinion that the most preferred hybridization conditions in the '848 patent are included within high stringency hybridization conditions as defined in the above-referenced patent application.

8. Furthermore, I am of the opinion that the hybridization technique in the '848 patent fall under both methods of "preparing recombinant nucleic acids and vectors" and "probes".

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

March 8, 2004

Maris Apse